

ABSTRACT

A polarization integrator comprises a polarizing beam splitter (PBS) for splitting light from a light source 1 into P-polarized light and S-polarized light, a first micro-lens 52, a $\frac{1}{2}$ wavelength plate 53, and a second micro-lens 54; the first micro-lens is arranged to focus onto mutually differing positions the P-polarized light and S-polarized light split by the PBS; the $\frac{1}{2}$ wavelength plate is arranged in the position in which the P-polarized light is focused, and operates to convert the P-polarized light into S-polarized light; the second micro-lens operates to integrate the S-polarized light after it has passed through the $\frac{1}{2}$ -wave plate and been polarization-converted, with S-polarized light which has not passed through the $\frac{1}{2}$ -wave plate; and at least any one of the PBS, the first micro-lens, the $\frac{1}{2}$ -wave plate, or the second micro-lens is formed using a DLC film.